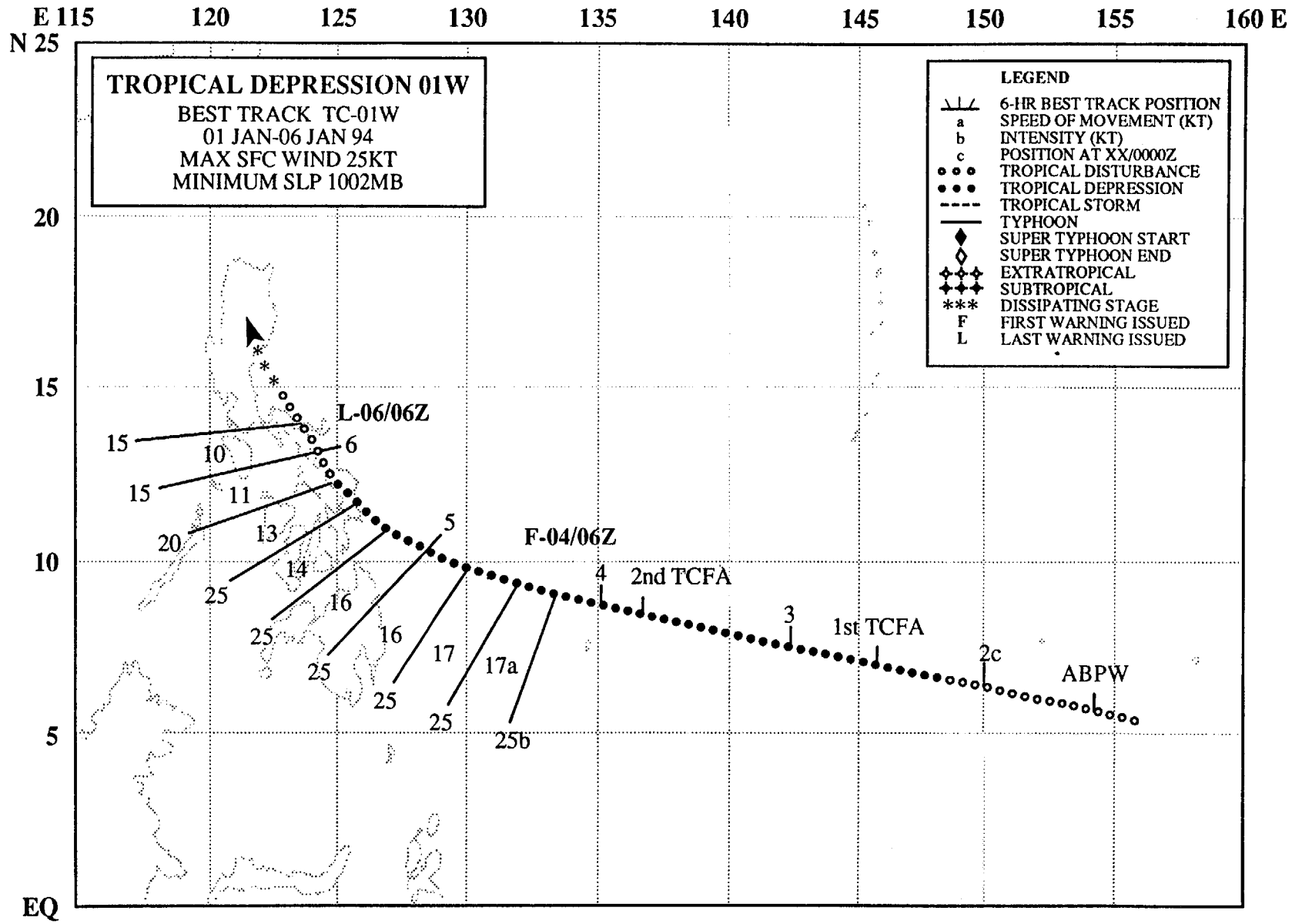
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EQ
TROPICAL DEPRESSION 01W
BEST TRACK TC-01W
01 JAN-06 JAN 94
MAX SFC WIND 25KT
MINIMUM SLP 1002MB
LEGEND
6-HR BEST TRACK POSITION
a SPEED OF MOVEMENT (KT)
b INTENSITY (KT)
c POSITION AT XX/0000Z
TROPICAL DISTURBANCE
TROPICAL DEPRESSION
TROPICAL STORM
TYPHOON
SUPER TYPHOON START
SUPER TYPHOON END
EXTRATROPICAL
SUBTROPICAL
*** DISSIPATING STAGE
F FIRST WARNING ISSUED
L LAST WARNING ISSUED
L-06/06Z
F-04/06Z
2nd TCFA
1st TCFA
ABPW
15
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TROPICAL DEPRESSION 01W

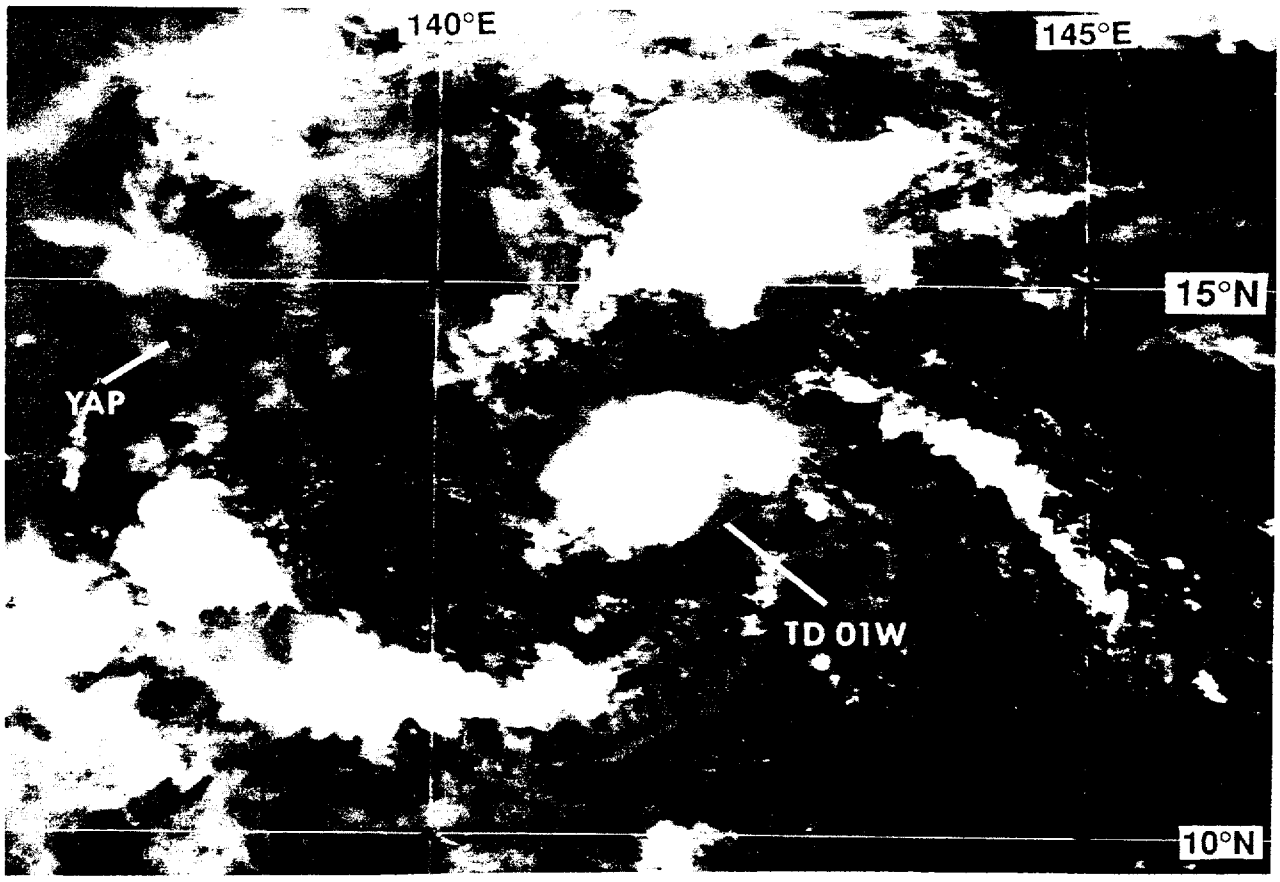

Figure 3-01-1 The disturbance which would later become TD 01W shows cyclonically curved lines of cumulonimbus clouds surrounding a small central cluster of deep convection (030231Z January visible GMS imagery).

I. HIGHLIGHTS

The first significant tropical cyclone of 1994 in the western North Pacific, Tropical Depression 01W reached a maximum intensity of only 25 kt (13 m/sec). Tropical Depression 01W formed in the near-equatorial trough of the Northern Hemisphere at a time when the monsoon trough of the Southern Hemisphere was also active.

II. TRACK AND INTENSITY

Tropical Depression 01W was first detected as a poorly organized area of cloudiness in the near-equatorial trough in the eastern Caroline islands. The disturbance was first mentioned on the 010600Z January Significant Tropical Weather Advisory. An increase in convective organization and a gradient-level wind of 30 kt (15 m/sec) at Chuuk (WMO 91334) prompted a Tropical Cyclone Formation Alert at 021400Z. During the daylight hours of 03 January (022100Z to 030800Z) the disturbance lost much of its deep convection; and, although it retained organized curved cloud lines (Figure 3-01-1), it had yet to intensify into a significant tropical cyclone. A dramatic flare-up of deep convection between 031800Z and 040000Z, that produced a large cold cirrus cloud shield with anticyclonic outflow, prompted a second Tropical Cyclone Formation Alert which was issued at 031900Z followed by the first warning at 040600Z. This first cold cloud shield collapsed by evening (040600Z), and the intensity was held at 25

kt (13 m/sec). A second flare-up of deep convection between 041800Z and 050000Z resulted in another large cold cirrus cloud shield. The system appeared to be somewhat sheared with the low-level circulation center located at the southeastern edge of this cloud shield. Synoptic wind and pressure reports and satellite intensity estimates indicated that the system had still failed to mature and the intensity was kept at 25 kt (13 m/sec). At 051200Z, Tropical depression 01W made landfall on the island of Samar in the central Philippines. Convection became disorganized and synoptic reports from land and ships indicated that the disturbance was weakening. The last warning on Tropical Depression 01W was issued at 060600Z as the system tracked along the east coast of Luzon, and lost its deep convection.

III. DISCUSSION

Tropical Depression 01W was forming in the Northern Hemisphere near-equatorial trough at the same time as the Australian Northwest Monsoon was reaching a peak of activity. When the first Tropical Cyclone Formation Alert was issued for Tropical Depression 01W, two named tropical cyclones, Rewa (05P) and Oscar (06S), and a tropical disturbance were active in the Australian region of the monsoon trough of the Southern Hemisphere (Figure 3-01-2). Tropical Depression 01W formed in a wind pattern with some similarity to the twin-trough pattern that is commonly observed during the simultaneous occurrence of tropical cyclones on both sides of the equator. In this case, however, the southern monsoon trough was clearly dominant and further from the equator than the northern near-equatorial trough.

Another interesting feature of the evolution of Tropical Depression 01W was the strong diurnal periodicity of the flare-up of large cold cirrus shields near the circulation center. On two occassions, once on the early morning of 04 January, and again during the early morning of 05 January, a large mesoscale convective system developed on the northwestern side of the circulation center and produced an extensive area of very cold dense cirrus cloud cover. During the afternoon, after both of these early morning flare-ups, the convection collapsed and the cirrus canopy thinned. Despite the increase of convection near the low-level circulation center, Tropical Depression 01W failed to intensify. A possible reason may be the presence of persistent southeasterly shear across the system. A large-scale collapse of the Australian Northwest Monsoon occurred concurrently with the dissipation of Tropical Depression 01W.

IV. IMPACT

Although Tropical Depression 01W brought heavy rains to some areas of the Philippine Islands, no reports of significant damage or fatalities were received.

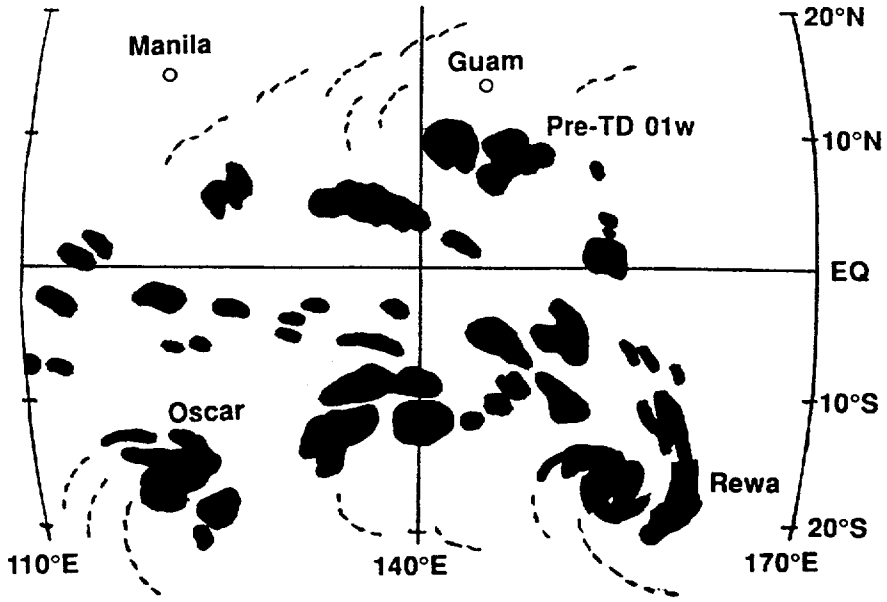

Figure 3-01-2 Cloud silhouettes adapted from the 021234Z infrared GMS imagery show two named tropical cyclones — Rewa (05P) and Oscar (06S) — along the axis of low pressure of an active Australian monsoon. The disturbance which would later intensify to become Tropical Depression 01W is seen south of Guam. Thin dashed lines show streamers of high-thin cirrus.